REMARKS

Status of Claims

Claims 1-13 are pending. Claims 1-9 and 11 have been withdrawn.

Claim 13 has been added, which is supported by page 6, lines 13-18 of the specification. Care has been taken to avoid introducing new matter.

Rejection under 35 U.S.C. §§ 102/103

Claims 10 and 12 were rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over KR 10-2002-0063681 (KR '681). These rejections are traversed for at least the following reasons.

The Examiner asserts that KR '681 discloses Li-P-O-Si-N as a solid electrolyte. Although KR '681 fails to expressly disclose the fractions a, b, c, d, e in the present claims, the Examiner asserts that KR '681 inherently discloses the claimed range of these fractions. Specifically, the Examiner asserts that KR '681 teaches proportioning the ratio of phosphorus (P) and silicon (Si) in the sputtering composite where the sum of the ratios of P to Si is one. The product, then sputtered in the presence of nitrogen will form a Li-P-O-Si-N film having stoichiometric ratio of each element falling within the claimed range. Applicants disagree.

Applicants respectfully submit that in the previously filed Response, Applicants did not argue the ratios of P and Si (i.e., values of b and c, respectively), but argued **the ratio of Li** (i.e., value of a) (see, page 7, lines 3-8 of the Response filed May 6, 2009). Accordingly, the above Examiner's response does not address the Applicants' arguments and has no merit. Applicants respectfully submit that since KR '618 utilizes $\mathbf{Li_3PO_4}$ powders and $\mathbf{Li_2SiO_3}$ powders as the sputtering target, the Li ratio "a" in the product of KR '681 would be **less that 3**, where b+c=1.

In contrast, claim 10 clearly recites a = 3.0 to 3.7. In the present application, since, for example, Li_3PO_4 and Li_4SiO_3 are utilized as sources, the Li ratio "a" can be 3 or more (i.e., 3.0 – 3.7).

In this regard, the Examiner asserts, in the Advisory Action, that Applicants fail to provide clear and convincing evidence to support this argument. Applicants disagree. First, the Examiner incorrectly requires that Applicant submit clear and convincing evidence. There is no legal authority that holds that Applicant must submit clear and convincing evidence to rebut a *prima facie* obviousness case. Second, Applicants respectfully submit that it is rather the Examiner who fails to establish *prima facie* obviousness. The Examiner asserts that KR '681 would result in the Li ratio of more than 3. However, the Examiner fails to provide any factual and technical basis, and thus his assertion is mere speculation. The Examiner fails to provide any factual and technical basis that utilizing Li_3PO_4 powders and Li_2SiO_3 powders as the sputtering target would more likely result in the Li ratio of more than 3. Rather, Applicant submits that it is more likely that the use of Li_3PO_4 powders and Li_2SiO_3 powders as disclosed in KR '681 would result in the Li ratio between 2-3 than not (i.e., **more than 3**).

Applicant respectfully submits that it is clear for one of skill in the art that utilizing Li_3PO_4 powders and Li_2SiO_3 powders as the sputtering target results in the Li ratio of **less that 3**. Since the Examiner fails to meet his burden to establish the *prima facie* obviousness, Applicants is not required to show any clear and convincing evidence.

As such, it is clear that the alleged inherent characteristic does not necessarily flow from the teachings of KR '681 since KR'681 utilizes a different target composite. Accordingly, the Examiner's reliance on inherent disclosure has no basis. Thus, claim 10 is patentable over the cited reference.

The Examiner further asserts in the Response to Argument section that the criticality of range "c" is not supported by any clear evidence. Applicants, however, submit that in the Response filed May 6, 2009, Applicants argued criticality of the range of "**a**" with respect to claim 10 (see, page 7, lines 6-8 of the Response filed May 6, 2009). Accordingly, the above Examiner's response does not address the Applicants' arguments and has no merit. Applicants respectfully submit that by setting the Li ratio "a" 3.0-3.7, the decrease in ion conductivity is more effectively prevented than in the case of Li ratio "a" less than 3 (see, Examples 14-17 in Table 3 of the specification). Compared with Examples 11-13, whose Li ratio "a" is less than 3, Examples 14-17, whose Li ratio "a" is 3.0 – 3.7, have higher ion conductivities after 2 weeks, which clearly exhibits significant unexpected results obtained by the present subject matter. As such, since the claimed range of "a" can exhibit the unexpected results as clearly disclosed in Table 3, claim 10 is not obvious over the cited reference.

Furthermore, Applicants respectfully submit that the amount of N (e=0.1-0.5) is not recognized by KR '681 as a result effective variable. Applicants respectfully remind the Examiner that a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (see, M.P.E.P. § 2144.05). It is clear that KR '681 fails to recognize or suggest that the amount of nitrogen is a result effective variable. Applicants submit that mere presence of nitrogen in the composition does not necessarily mean that KR '681 recognizes that the amount of nitrogen affects the properties of the battery utilizing the

electrolyte. As such, since the Examiner fails to point out that the amount of nitrogen is a result effective variable, the claimed range of 0.1-0.5 is not obvious over KR '681.

In this regard, the Examiner asserts, in the Advisory Action, that the Examiner did not expressly state that nitrogen is a result effective variable. This assertion has no merit because the law or the rules do not require that the Examiner must first expressly state that the particular parameter is a result effective variable when the Applicant rebutting the rejection by arguing that the parameter is not a result effective variable. It should be noted that since KR '681 does not disclose any amount of nitrogen, the present case does not fall on the section **I** of M.P.E.P. § 2145.05, but falls on the section **II** of M.P.E.P. § 2145.05. The section II. OPTIMIZATION OF RANGES of M.P.E.P. § 2145.05 simply states "[a] particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)." Thus, it is clear that M.P.E.P. requires that the Examiner first provide the basis that the particular parameter is recognized in the prior art as a result effective variable.

Further, although the Examiner asserts that a minor amount of nitrogen would be incorporated, such a minor amount does not necessarily mean the claimed range of nitrogen, i.e., e = 0.1 to 0.5. The Examiner does not provide any technical basis that the solid electrolyte of KR '681 contains 0.1 to 0.5 of nitrogen. Merely asserting that the method of KR '681 would result in the same composition is a mere speculation, and does not meet his burden to establish *prima facie* obviousness. Again, Applicants respectfully submit that there is no legal authority that holds that Applicant must submit clear and convincing evidence to rebut a *prima facie* obviousness case.

As such, it is clear that KR '681 neither anticipates claim 10 nor renders claim 10 obvious. Accordingly, claim 10 is patentable over KR '681. Since claim 12 depends upon claim 10, this claim is also patentable over KR '681 for at least the same reasons as claim 10.

New Claims

Since new claim 13 depends upon claim 10, this claim is patentable over the cited references. Further, the claimed amount of c=0.2 to 0.5 is critical to the electrical properties of the solid electrolyte as shown in Table 3 of the specification (see, ion conductivity after 2 weeks). As such, claim 13 is patentable over the cited references on its own merit.

CONCLUSION

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

Takashi Saito
Limited Recognition No. L0123

Please recognize our Customer No. 53080 as our correspondence address.

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 TS:MaM
Facsimile: 202.756.8087
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